* Draw a parabola that has the given features. If you can draw more than one parabola, explain why.

**Parabolic Characteristics** Name:

* State whether the vertex is a maximum or minimum and how you know).
* Provide the parabola’s range.

1. axis of symmetry: *x* = 2; *y*-intercept: (0, -12); *x*-intercepts: (-2, 0), (6, 0); vertex: (2, -16)

2. *y*-intercept: (0, -15); *x*-intercepts: (-5, 0), (3, 0); vertex: (-1, -14)

3. *y*-intercept: (0, 12); *x*-intercepts: (-4, 0), (8, 0); vertex: (2, 36)

4. *y*-intercept: (0, 5); vertex: (-0.5, 4.75)

5. y-intercept (0, 10); x-intercept (-6, 0)

6. x-intercept and vertex (-7, 0); y-intercept (0, 12)

* Find the indicated value(s) or point(s).

7. a) Find the ***x-value of the vertex*** of a parabola that passes through (-7, 2) and (0, 2).

b) Find the ***x-value of the vertex*** of a parabola that passes through (-3.5, 0) and (4.1, 0).

c) Find the ***exact coordinates of the vertex*** of the parabola f(x) = x2 + 4x + 3 if its axis of symmetry is x = -2.

d) Find ***another point*** on a parabola that passes through (0, 5) and whose axis of symmetry is x = 2.